

DEVELOPING A NEW SECOND-CYCLE UNIVERSITY PROGRAMME CURRICULUM ACCORDING TO THE BOLOGNA PROCESS

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This article describes how Rovaniemi University of Applied Sciences is building a new second-cycle university degree programme in the field of technology. The planning and implementation of this degree programme takes into consideration the pan-European definitions of education leading to a Master's degree. The planning of the content of this degree programme also considers the needs of working life and the viewpoint of regional development.

Bologna process – "European model of an institution of higher education"

In 1999 ministers of education from 29 European countries assembled in Bologna, Italy. They signed the so-called Bologna declaration. It's most important goal was to create a competitive and attractive European higher education area by 2010.

The Bologna process was concretised into the following goals (The Bologna Declaration 1999):

- *Understandable degree structures.* This involves creation of a uniform credit transfer and rating system (European Credit Transfer System, ECTS). In the system, 1600 hours of work per year corresponds to 60 credits.
- *Uniform degree structures.* The degree structure is based on a three-cycle model. The first cycle is comprised of lower-level academic and vocational education leading to a Bachelor's degree. The second cycle includes higher-level academic and vocational education leading to a Master's degree. The third cycle consists of education leading to licentiate and doctoral degrees.
- *Increased mobility* means eliminating obstacles to students', teachers' and researchers' mobility and increasing mobility.
- *Quality assessment* will be included in the implementation of higher education. In Finland this goal is promoted by the Finnish Higher Education Evaluation Council.
- *European dimension of higher education.* This goal requires closer international co-operation and networking as well as language and cultural education.

Finnish university of applied sciences system in the European context

The university of applied sciences (formerly polytechnic) system was created in Finland in the 1990s. The first polytechnics began operation in 1992. The system grew to its full extent by 2000. There are 28 universities of applied sciences and 20 academic universities in Finland. The universities of applied sciences started a second-cycle experiment in 2002. The current second-cycle degree system based on the experiment was started in 2005. Today about 2000 students a year start this education in Finland. According to the research and education development plan issued by the government, the number of starting places in second-cycle university of applied sciences education will nearly double by 2012. (Ministry of Education 2007.)

The Finnish higher education system is being built on a dual model basis (Fig. 1). The dual model is the foundation of Finnish higher education. This means a higher-level degree can be

gotten in Finland from either a university of applied sciences or an academic university. The government is committed to implementing the dual model. The education offered by academic universities is based on science and scientific research. The starting point of university of applied sciences is working life and applied research that develops working life. (Dromberg 2007, 13 - 16.) The two pillars of the dual model do not compete with each other, they complement and support each other. A similar dual system is used in at least Germany and Holland.

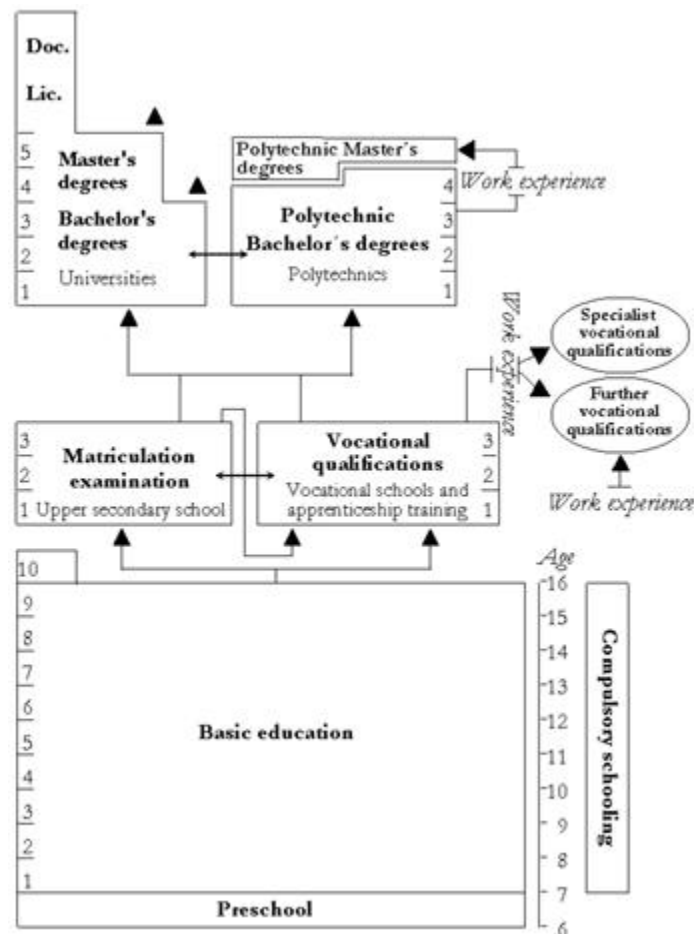


Figure 1: Education system in Finland

The Finnish higher education system has periodically been assessed internationally. Most recently a group of OECD researchers (OECD 2006) assessed the university of applied sciences system. In its report the group stated that in the Finnish higher education system, second-cycle university of applied sciences degrees should have a different profile than academic universities' Master's degrees. According to the group of researchers, development of unique higher-level degrees for universities of applied sciences reinforces the dual model. They valued the development of further education channels for people with work experience. In the same report the group of researchers proposed that the name of the degree could be "Professional Master", which would depict the professional and adult education nature of the degree.

Practically oriented professional Master's degree

The goal of studies leading to a second-cycle university of applied sciences degree is to provide students with extensive, profound knowledge needed in the development of working life and theoretical knowledge required to work in demanding specialist and management jobs in the field. The degree also provides the ability to keep up with developments in research and professional practices and readiness for lifelong learning and continuous development of professional skills.

An acceptance requirement for second-cycle university of applied sciences studies, in addition to a basic degree or some other applicable university degree, is three years of work experience. The scope of second-cycle degree programmes in Finland is at least one academic year and no more than a year and a half of full-time study. In the field of technology their scope is 60 credits.

Higher education and regional development

Universities of applied sciences have strong regional influence. Their impact on regional development is implemented through education and research and development. Second-cycle university of applied sciences degrees have become a significant channel for influencing the development of business and public service. The main concern is to consider how planning and implementation of a new degree programme can be a part of regional development.

In addition to providing basic education and research and development, a special task of universities of applied sciences is to provide adult education that serves working life (The Polytechnics Act 2003). Second-cycle university of applied sciences degree programmes have become an essential part of adult education offered by the universities.

Based on an assessment of centres of excellence in regional impact done by the Finnish Higher Education Evaluation Council in 2006, at their best universities of applied sciences are recognised and acknowledged powerhouses in the development of their own regions, and regional development work is included as a central theme in all the strategies that steer their operation. Universities of applied sciences have assumed an active role in the development of their regions. Their strategies are compiled in co-operation with their interest groups and they are based on regional challenges and major change in their operating environment. (Käyhkö et al. 2006.)

Rovaniemi University of Applied Sciences - centre of excellence in regional impact

Rovaniemi University of Applied Sciences has a strong regional label. It is the northernmost university of applied sciences in the European Union. Lapland and for its part all of northern Finland as its area of operation and impact label the university's education repertoire and research and development activity. In the latter, tourism, sustainable use of the region's natural resources, cold climate technology and development of wellness services based on top technology are emphasised (Fig. 2). The education provided includes elements for safeguarding and developing the region's business and wellness services. (Yrttiaho & Lohiniva 2007.)

In June 2006 Finland's Ministry of Education named Rovaniemi University of Applied Sciences a centre of excellence in regional impact for 2006-2007. In addition to status value, a university named a centre of excellence also receives special profitability money. According to feedback received from the Finnish Higher Education Evaluation Council (Käyhkö et al. 2006), RAMK has clearly indicated its regional impact and its own recognised profile in regional development work.

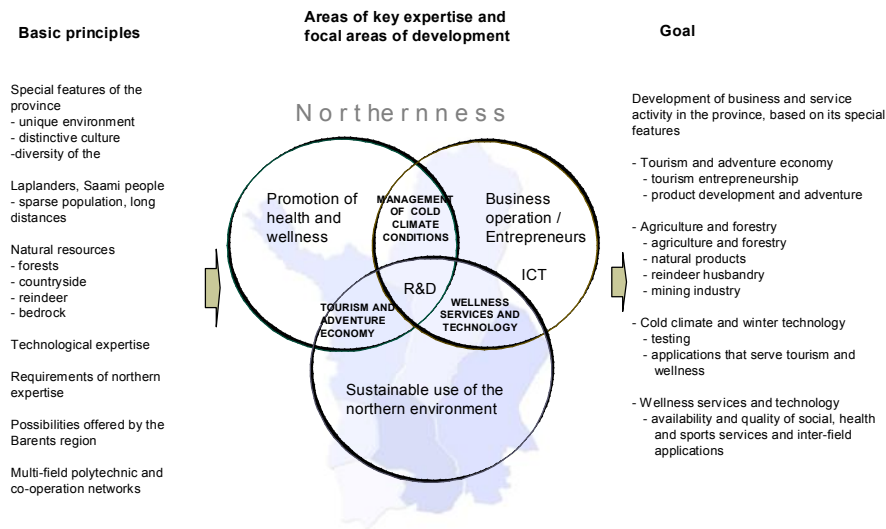


Figure 2: Strategic foundation and goals of Rovaniemi University of Applied Sciences

According to the feedback, RAMK has also shown evidence of profitable co-operation that serves business. RAMK's investments and role in innovation can be assessed to have a definite influence on regional development. The effects are visible in companies' growth, speeded up by R&D, and additional jobs. RAMK encourages its students to pursue multidisciplinary. This is apparent in, e.g. the possibility to utilise different degree programmes. Studying also includes the possibility to participate in entrepreneurship studies and international activities.

The purpose of assessing regional impact is to support the regional development work of higher education. At the same time knowledge about good practices in regional development work is spread to other institutions of higher education. The assessment of regional development work fixed attention on the overall operation of the university. The assessed areas include, for example, the university of applied sciences' regional development strategy, the operating processes and resources of development work, the university's activeness in innovation, connections to working life and the results of regional development work.

Degree programme as an influencer of regional development

By regional impact the Finnish Higher Education Evaluation Council means the university of applied sciences' proactive role in and influence on its region's activity, e.g. in reinforcing the region's know-how and increasing its social capital. From the viewpoint of an individual degree programme, this is a question of reinforcing the professional competence base of the region's working and business life and anticipatively reacting to the region's competence needs. Also essential is focusing the development of professional expertise and improving adult education's ability to react. The Master's Degree Programme in Management of Technological Competence addresses exactly these challenges.

Master's Degree Programme in Management of Technological Competence

Rovaniemi University of Applied Sciences was established permanently in 1998. The first second-cycle degree programme was started in 2006. It was the Master's Degree Programme

in Health Promotion, which was also included in the experimental phase. The first second-cycle degree programme in technology began in the autumn of 2007. Its creation was especially prompted by the lack of Master's-level education in technology in Lapland Province. From the start planning of the education was based on the special needs of Lapland's economic life, to increase engineering know-how for the development of industry and the service sectors. Three themes arose: leadership, project management and information security management. The first two entities fill the need for corporate and organisational management know-how. Information security management was included in the degree programme as a part of the Lappish concept of building a top-level security cluster in the Rovaniemi region together with the University of Lapland and local authorities and enterprises.

In Finnish working life, people who succeed in specialist tasks are often rewarded with team leader or unit manager positions. Such people do not necessarily have knowledge or skills with which to manage people. According to a study by Mäntylä (Mäntylä 2006), this is a national problem, especially in ICT companies. The people management theme is strongly present in the degree programme. It offers engineers tools with which to manage their units' employees and especially their expertise. Expertise is seen as a basic factor of production.

Another theme raised by working life was management of extensive, complex project entities. Project management is everyday work for an ordinary engineer. For an engineer, building construction, software production and machine design are all projects. But does an engineer have enough know-how when specialists from several fields assemble around the same project? Or if a software project has Finnish, Estonian or even Indian specialists with their own cultural backgrounds? These themes are developed in the degree programme in accordance with ideas presented by representatives from the region's working life.

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Situation in the spring of 2008

Development of the content of the degree programme has been successful. In 2007 the degree programme was the most popular degree programme in management of technological competence among students in Finland's joint application system. Applicants included both engineers who had worked long in working life and young, aspiring specialists striving ahead in their professional careers. The students work as managers and specialists in the region's high-technology companies (software companies, a mobile phone manufacturer) and in public organisations (armed forces, National Land Survey of Finland, Ministry of the Interior's IT centre). The large number of applicants indicates that there has been a need for this type of management education among engineers. The students give their own input to regional development through their thesis projects. The thesis projects focus on operating methods related to management and structural development in the above-mentioned organisations. The content of the degree programme is being developed further based on feedback from students and representatives from working life.

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Curriculum Vitae

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